CLAIMS

1. A method of defining a common interactions protocol between two entities, the method comprising:

inputting a description of each entity's messaging guidelines, the description including the entity's constraints on interacting with the other entity;

calculating the union of the two descriptions;

determining whether the union is satisfiable using a constraint resolver;

providing the intersection of the two descriptions as the common interactions protocol if the union is satisfiable; and

indicating where any incompatibility lies if the union is not satisfiable.

2. A method according to Claim 1, further comprising converting each description into a respective semantic web ontology structure comprising a set of class hierarchies, properties and constraints.

3. A method according to Claim 2, wherein the messaging guidelines are input as XML Schemas.

4. A method according to Claim 3, wherein the XML schemas represent RosettaNet Schemas.

5. A method according to Claim 4, futher comprising inputting additional information defining the classes of PIP documents, partner entities and business processes characterising each entity's existing RosettaNet deployments.

6. A method according to Claim 1, wherein the messaging guidelines are input as instances of objects in an object-oriented description language.

7. A method according to Claim 2, further comprising inputting additional context specific constraints from the entity into the structure.

8. A method according to Claim 1, wherein the providing step comprises providing

a specific subset of the common interactions protocol as a set of syntactic constaints.

9.   A method according to Claim 1, wherein the providing step comprises providing a specific subset of the common interactions protocol as a set of semantic constaints.

10. A method according to Claim 2, wherein the semantic web ontology structure is expressed as a Resource Description Framework structure.

11. A method according to Claim 1, further comprising adjusting at least one entity's constraints if an incompatibility has been identified and then repeating the inputting, converting, calculating determining and adjusting steps until the union is satisfiable.

12. A method according to Claim 1, wherein the constraint resolver comprises a description logic reasoner.

13.   A method according to Claim 2, wherein the inputting step comprises:

    specifying document constraints in a general way such that they are applicable to a plurality of specific instances/classes of objects/processes; and

    linking each constraint to a particular deployment context in which that constraint is to be applied;

    such that when a run-time solution of the interaction protocol is deployed, it can be decided depending on the deployment context whether or not each constraint applies to any document.

14. A method according to Claim 13, wherein the messaging constraints are syntactic.

15. A method according to Claim 13, wherein the messaging constraints are semantic.

16.   A method according to Claim 13, wherein the deployment context comprises one or more elements from the set comprising the document, the sender, the receiver, the backend system, the business process and the department.

17. A method according to Claim 13, wherein the deployment contexts are expressed using Boolean logic between the elements.

18. A method according to Claim 13, wherein the specifying step comprises specifying constrainst applicable to whole classes of objects/processes.

19. A method according to Claim 13, further comprising inheriting constraints in accordance with class/object relationships.

20. A system for defining a common interactions protocol between two entities, the system comprising:

  data input means for inputting a description of each entity's messaging guidelines; the description including the entity's constraints on interacting with the other entity;

  a constraint resolver for calculating the union of the two descriptions and determining whether the union is satisfiable;

  means for providing the intersection of the two descriptions as the common interactions protocol if the union is satisfiable; and

  means for indicating where any incompatibility lies if the union is not satisfiable.

21. A system according to Claim 20, further comprising a translator for converting each description into a respective semantic web ontology structure comprising a set of class hierarchies, properties and constraints.

22. A method of expressing messaging constraints on a model of an interaction protocol between two business partners, the method comprising:

  specifying document constraints in a general way such that they are applicable to a plurality of specific instances/classes of objects/processes; and

  linking each constraint to a particular deployment context in which that constraint is to be applied;

  Wherein when a run-time solution of the interaction protocol is deployed, it can be decided depending on the deployment context whether or not each constraint applies to any document.

23. A method according to Claim 22, wherein the messaging constraints are syntactic.

5   24. A method according to Claim 22, wherein the messaging constraints are semantic.

25. A method according to Claim 22, wherein the messaging guidelines are input as XML Schemas.

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26. A method according to Claim 25, wherein the XML schemas represent RosettaNet Schemas.

27. A method according to Claim 26, further comprising inputting additional

15   information defining the classes of PIP documents, partner entities and business processes characterising each entity's existing RosettaNet deployments.

28. A method according to Claim 25, wherein the deployment context is related to RosettaNet deployments.

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29. A method according to Claim 22, wherein the interaction model is expressed in one of the group comprising an XML description language and an object-oriented description language.

25   30. A method according to Claim 22, wherein the deployment context comprises one or more elements from the set comprising the document, the sender, the receiver, the backend system, the business process and the department.

31. A method according to Claim 22, wherein the deployment contexts are

30   expressed using Boolean logic between the elements.

32. A method according to Claim 22, wherein the specifying step comprises specifying constrainst applicable to whole classes of objects/processes.

33. A method according to Claim 22, further comprising inheriting constraints in accordance with class/object relationships.

34. A system for expressing messaging constraints on a model of an interaction protocol between two business partners, the system comprising:

a constraint processor for specifying document constraints in a general way such that they are applicable to a plurality of specific instances/classes of objects/ processes; and

structuring means for linking each constraint to a particular deployment context in which that constraint is to be applied;

wherein when a run-time solution of the interaction protocol is deployed, it can be decided depending on the deployment context whether or not each constraint applies to any document.

35. A method of expressing semantic constraints on a model of a business interactions protocol described by a semantic ontology language, the method comprising

providing a cardinality type constraint template for inputting cardinal constraints;

providing a data format type constraint template for inputting data format constraints;

providing an interdependency of field type constraint template for inputting interdependency of field constraints; and

converting data input via the templates into the semantic ontology language whereby semantic constraints relating to RosettaNet implementations can be input relatively easily into the model.

36. A method according to Claim 35, wherein the providing steps comprise providing each of the templates in a graphical format.

37. A method according to Claim 35, wherein each of the cardinality and data format constraint templates present a list of business objects for user selection.

38. A method according to Claim 37, wherein each of the cardinality and data

format constraint templates present a list of tree elements of the selected business object for user selection.

39.   A method according to Claim 38, wherein the cardinality constraint templates provide means for specifying the type of cardinality and the value of the cardinality of the selected tree element of the selected business object.

40.   A method according to Claim 38, wherein the data format constraint template provides a datatype selector and editor and for specifying and entering the datatype of the selected tree element of the selected business object.

41.   A method according to Claim 35, wherein the interdependency of field type constriant template comprises a first section for use in specifying the trigger constraint and a second section for use in specifying the resultant constriant which is conditional upon the trigger constraint becoming true.

42.   A method according to Claim 41, wherein the first and second sections each comprise editors for editing the appropriately selected cardinality of data format.

43. A method according to Claim 35, wherein the model is described in the Web Ontology Langauage (OWL).